IN THE SPECIFICATION

Please amend the paragraph appearing at page 2, lines 7-17 of the specification as follows:

-- The method for object detection and ranging in accordance with the present invention comprises the steps of setting a predetermined number of threshold values to correspond to various distances; successively taking a predetermined number of samples with respect to an echoed signal by each one of the sensors in turn, and saving the same in a memory device; and comparing each sampled signal with the respective threshold value, if the value of the newly sampled data is greater, that means an object is present in the detection range, so distance computation can be initiated. The current sample value is further compared with the control data (i.e. previous sample value). If the current sample value is not equal to the previous sample value, then the current sample data is saved to replace the previous control data; but if <u>the</u> two are equal or close to each other, the current sample value is only used for distance computation without updating the control data. [[.]] --

Please amend the paragraph appearing at page 3, lines 13-21 of the specification as follows:

-- The third objective of the invention is to provide a detection and ranging technique, whereby multiple signal sensors or transceivers are to be initialized when the vehicle backing system is first enabled, and each sensor or signal transceiver emits a test signal and receives the same <u>signal</u> echoed back. In the process, the time needed to reflect the signal and the time allowance for all stray signals to fade out are both recorded. The former is used to discriminate echoed signals from stray signals, and the latter is for setting up a noise shield so that most of these stray signals can be filtered out in the object detection and ranging process. The accuracy of object detection can therefore be improved. --

Please amend the paragraph bridging pages 4 and 5 of the specification as follows:

-- The object detection and ranging apparatus as shown in Fig. 1 comprises a processor (10), a memory device (20), a channel selector (30), a power booster (40), a

sensor array (70), a signal amplifier (60), an A/D converter (50) and an alarm (80). The processor (10) is connected to the memory device (20) that holds control data. The input of the channel selector (30) is connected to the processor (10), and the output is connected to multiple power boosters (40). Multiple ultrasonic sensors or transceivers (not shown) form the sensor array (70). Each transceiver is connected to a power booster (40) to control the emission of ranging signals. Multiple cascaded operational amplifiers form a signal amplifier (60). The signal amplifier (60) is electrically connected between the input of the A/D converter (50) and an output of the channel selector (30). With further reference to Figs. 3A-3D, a shielding circuit (61) is connected across the output and grounding of the first operational amplifier, which is mainly controlled by a transistor in the circuit. The alarm (80) is controlled by the processor (10) and a buzzer is used in the embodiment described for illustrative purposes. --

Please amend the paragraph appearing at page 5, lines 5-10 of the specification as follows:

-- With reference to Figs. 2A-2C, the processor (10) is an AT89C51 chip. Processor (10) ~~P00-D07~~ P00-P07 pins are respectively connected to data pins (D0-D7) on the memory device (20) and [[are]] also to low-address pins (A0-A7) on the memory device (20) through a latch (11). Processor (10) pins P20-P22 are respectively connected to high-address pins (A8-A10) on the memory device (20), and processor (10) pins P23-P27 are connected to the A/D converter (50). --

Please amend the paragraph appearing at page 8, lines 13-23 of the specification as follows:

-- With reference to Fig. 4, after the first round of detection and ranging operation, all sensors (71-74) have had a chance to transmit a ranging signal and receive an echoed signal in accordance with the array ordering. The corresponding sample data are collected and saved in the memory device (20). The designations mXn, mYn, mZn, and mWn respectively ~~respective~~ represent the sampled signals collected by the sensors (71-74) in ascending order. The suffix "n" represents the sample order in the sequence, and the prefix "m" represents the round number of the

detection and ranging operation. A set of threshold values (Vn) with number matching with sampled signals is also saved in the memory device (20). Since the magnitude of echoed signal varies with the physical distance from the reflection point, the threshold values V1-V250 are calculated on the basis of the various distance, where V1>V250. --

Please amend the paragraph bridging pages 8 and 9 of the specification as follows:

-- With reference to Figs. 5A-5F, when the vehicle backing system is enabled, the signal sensors or transceivers (71-74) are first initialized. The initialization process includes clearing out all previous data from the memory device (20); activating the sensors or transceivers (71-74) to transmit a test signal; and recording the duration for a signal to travel back and the time for stray signals to fade out. These temporal data are used to set up the cutoff point of echoed signals and the shielding time for stray signals. According to the characteristics of ultrasonic signal transmission, the bulk of energy in a detection and ranging signal is emitted in a specific direction. When the signal hits an object it returns in the same direction to the receiver. One can reasonably assume that the strongest signals are echoed back from an object in the same direction as it was emitted. Unlike echoed signals, stray signals through indirect reflection usually take longer to come back, and their magnitude are also weaker than the former one. The signal cutoff point can be used to discriminate echoed signals from stray signals. A shielding time, which is based on the existence of stray signals, can be used as a time parameter in the shielding circuit (61) implemented through a transistor. By controlling the breakover timing of the transistor, the processor is able to suppress a stray signal following an echoed signal.--

Please amend the paragraph appearing at page 11, lines 2-23 of the specification as follows:

-- With reference to Figs. 5A-5F, the newly sampled data in the second round of sampling are first compared with the corresponding threshold value Vn to determine whether 2Xn>Vn. If the voltage level of the sampled signal (1Xn) is notably above the corresponding threshold value (Vn), an object is present in the

sensor detection range. The current sample data (2Xn) is passed to the processor (10) for distance computation. The same sample data (2Xn) is then compared with the previously saved ~~save~~ control data to determine whether these two values are equal. If the two values (that is mXn=(m-1) Xn) are the same or close to each other; that means there has been little change in the environmental conditions. The current sample data (2Xn) is only used for distance computation. Since the value of the current sample data 2Xn is notably above the respective threshold value, it means that an object is present, so the order "n" in the sequence is multiplied by two to derive the relative distance value in centimeters. But if the value of current sample data 2Xn is either greater of less than the control data 1Xn, that means the current sample value (2Xn) is different from the control data, therefore the respective control data is replaced by the current sample data by sequentially saving the current value in the memory device (20) for subsequent comparisons. The above ranging process is repeated for all four sensors in accordance with array ordering. If one or more object is present, one or more from the four sensors (71-74) will have detected and computed the relative distance, but only the one with the smallest distance value will be selected by the processor to represent the actual distance fro the nearest object. The processor (10) then activates the alarm with the frequency set to correspond to the distance computed. --